



BIMA BIOMETRICS
IDENTITY
MANAGEMENT
AGENCY

Biometrics: Impact, Opportunities & Challenges

**2012 EUCOM 3rd Annual Information, Innovation,
Integration, and Technology (i3T) Conference**

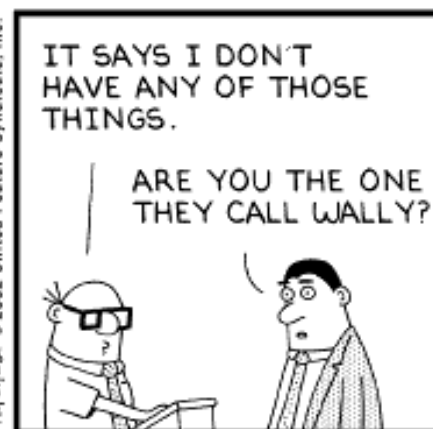
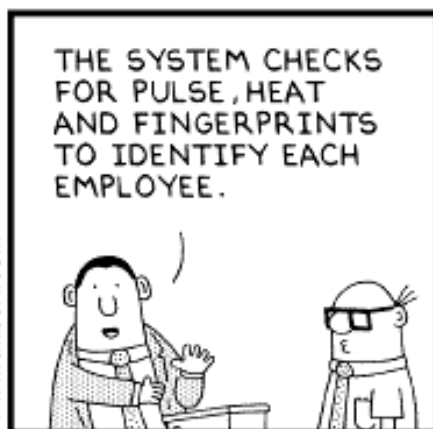
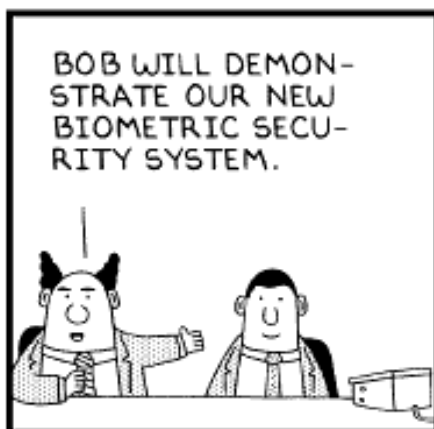
16 February 2012

Dr. Thomas Killion, Director, BIMA





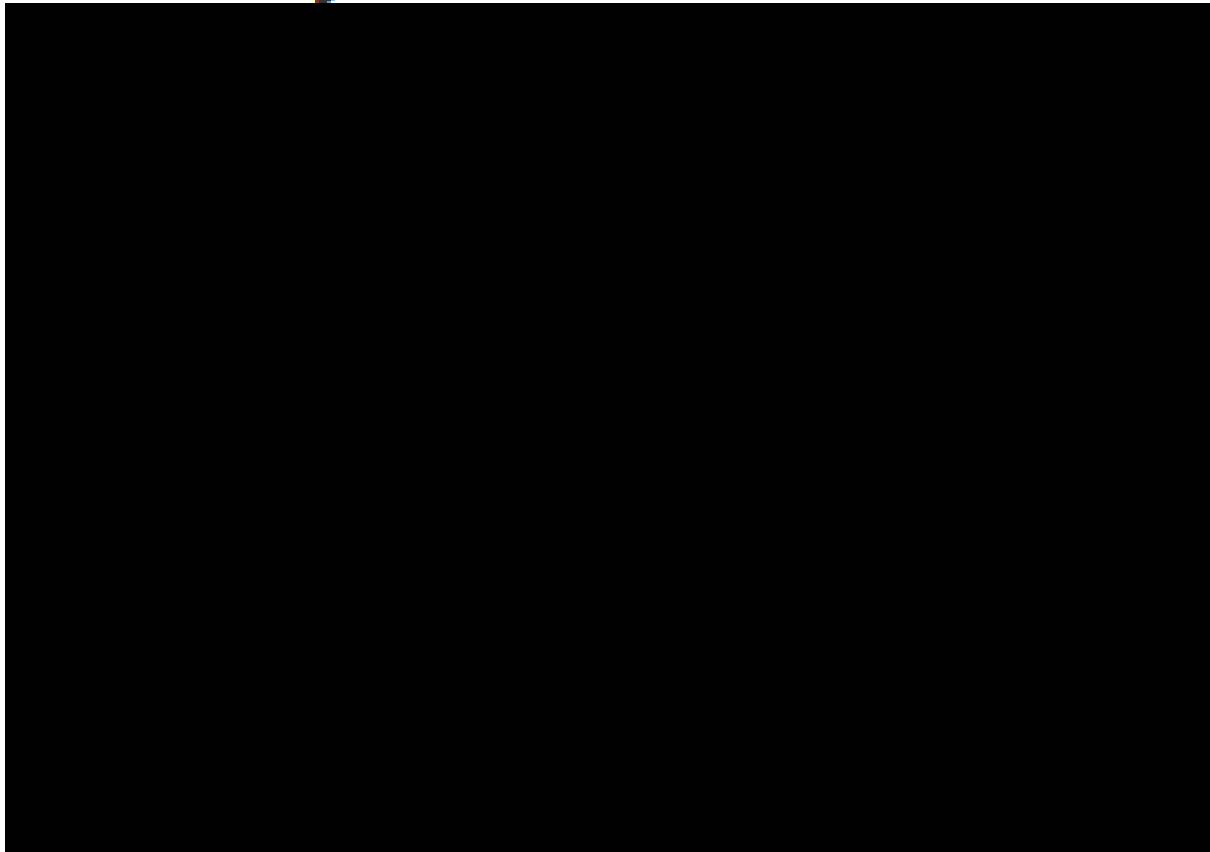
Intro



Intro

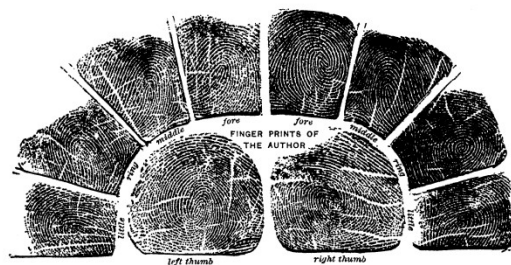
IBM's Top 5 Technology Predictions for the Next 5 Years

Security: The End of Passwords





FINGER PRINTS



BY
FRANCIS GALTON, F.R.S., ETC.

London
MACMILLAN AND CO.
AND NEW YORK
1892

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“(Fingerprints) have the unique merit of retaining all their peculiarities unchanged throughout life, and afford in consequence an incomparably surer criterion of identity than any other bodily feature.”

Francis Galton
Finger Prints, Macmillan: London, 1892



Biometrics: the Big Picture

Biometrics can be defined as either a **characteristic** or a **process** (JP 1-02):

- ▶ Characteristic: Measurable physical characteristic or personal behavior trait used to recognize the identity or verify the claimed identity of an individual
- ▶ Process: The process of recognizing an individual based on measurable anatomical, physiological, and behavioral characteristics

Biometrics are used to:

- ▶ Identify the individual with certitude, denying anonymity
- ▶ Enable DoD missions across warfighting, intelligence and business mission areas
- ▶ Protect friendly forces, essential capabilities and resources by reducing vulnerabilities



- ▶ “**One to many**” biometric comparisons (“identification”) seek to answer the question “**who are you?**”
- ▶ “**One to one**” biometric comparisons (“authentication” / “verification”) seek to answer the question “**are you who you say you are?**”

In Theater	CONUS	Interagency Partners	Internat'l Partners
▶ Targeting / tracking / prosecution of known or potential adversaries ▶ Protection of friendly forces, facilities, and equipment against adversaries and unknown persons	▶ Physical access to DoD facilities ▶ Personnel vetting (DoD persons) ▶ Credentialing (DoD persons)	▶ Enhance national security per NSPD 59 / HSPD 24 - Law enforcement purposes - Homeland security purposes	▶ Support military operations (e.g., ISAF) ▶ Law enforcement purposes (via FBI)

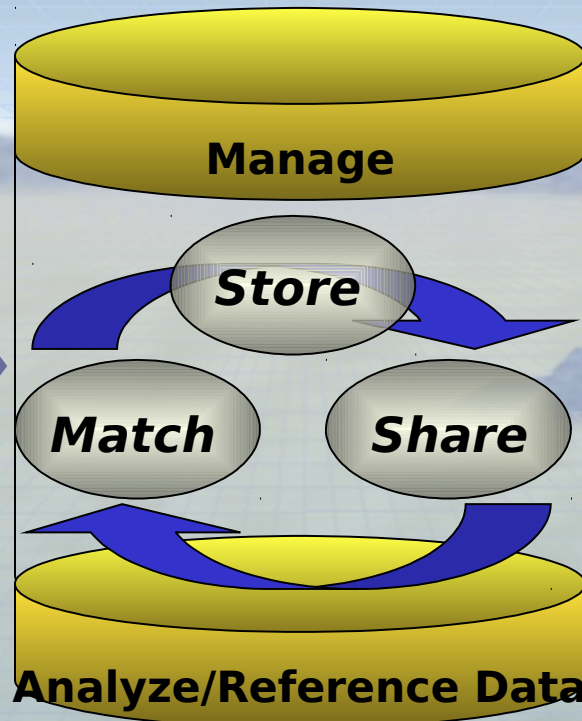
Biometrics in Support of DoD Operations



Biometric Modalities

- Fingerprint
- Iris
- Face
- Palm
- Future Modalities

Collect



Operational Application

- Populace Management
- Force Protection
- Access
- Surveillance
- Monitoring
- Combat ID



Maritime
Interdiction Vessel

Military Operations and Business Functions

Criminal Investigators

Special Operations Forces

Border Control Points

Medical Operations



Base Access/Force
Protection



HUMINT



Joint, Interagency, Multinational War fighter



Humanitarian
Relief

Civil Affairs

UNCLASSIFIED

Collection Platforms



Jump Kits



**Biometrics Identification
System for Access (BISA)**



**Biometrics Automated
Toolset (BAT)**

Handheld Collection Devices



Cogent Fusion



**Handheld Interagency
Identity Detection**

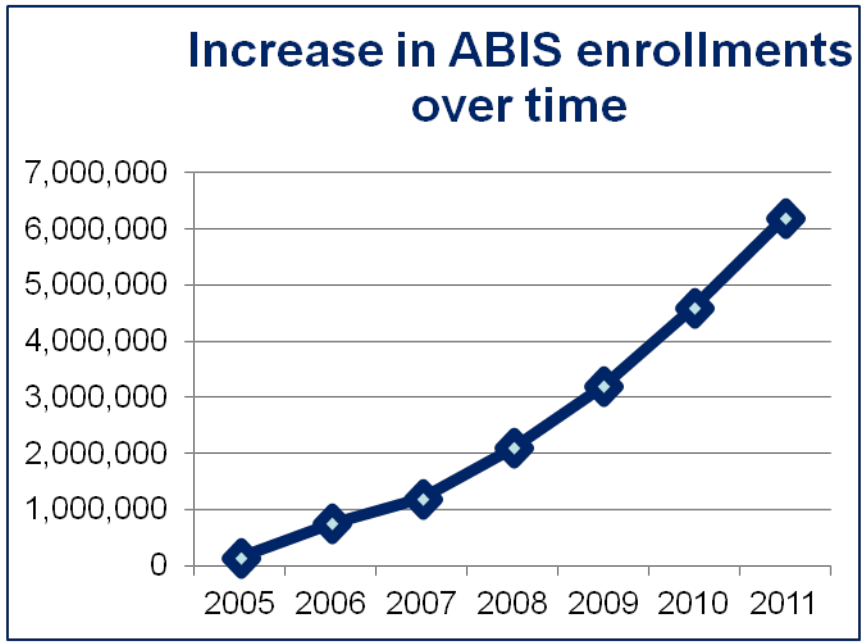


**Secure Electronic
Enrollment Kit II (SEEK
II)**

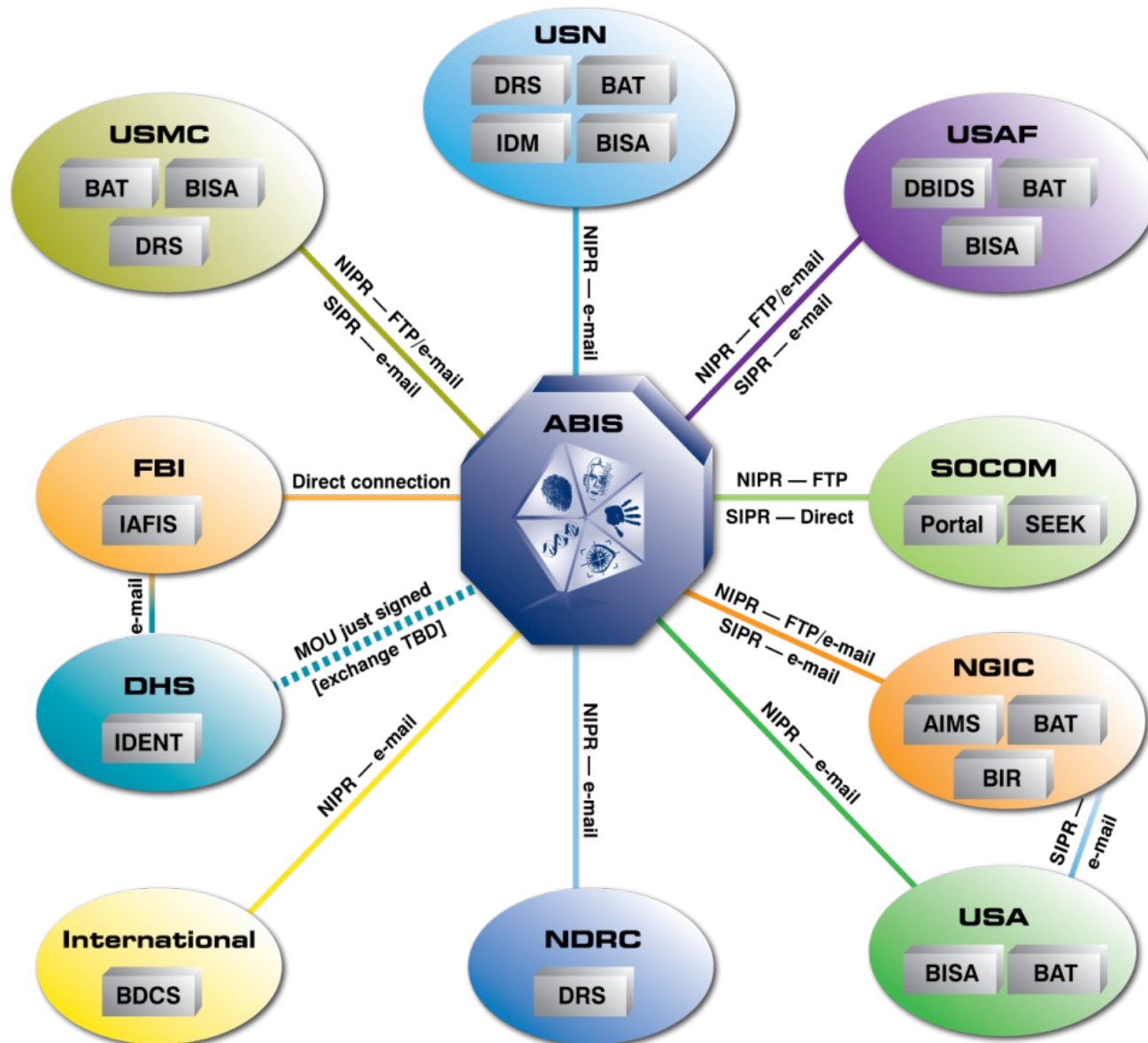


Current Status Overview:

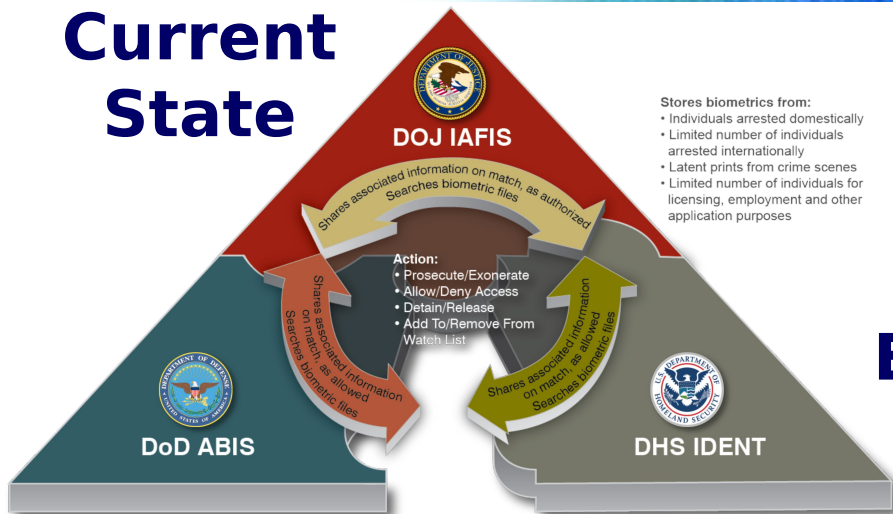
- ▶ **The DoD ABIS stores and matches biometric data to enable targeting, tracking and prosecution of known or potential adversaries. The DoD ABIS is also the means through which biometric data is shared with other U.S. government agencies**
- ▶ **6,800+ transactions per day**
- ▶ **7M records**



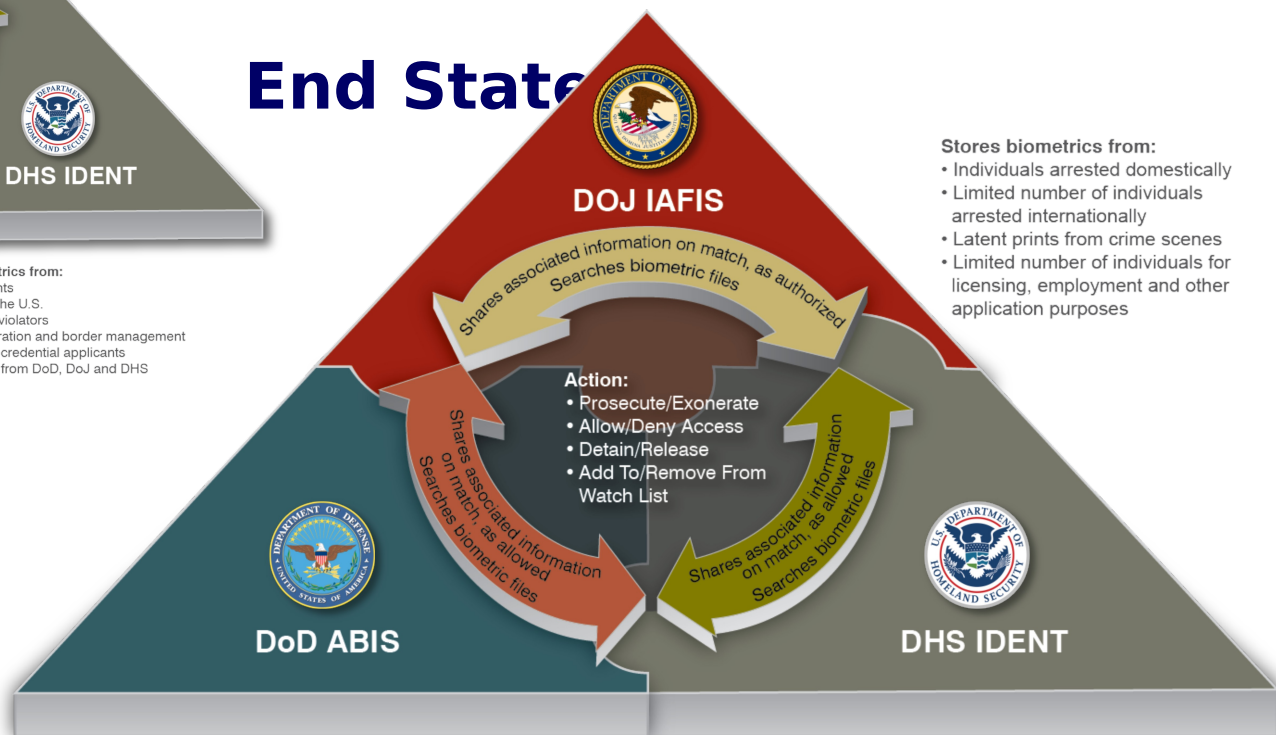
Enrollments are increasing 16%-39% each year



Current State



End State



Stores biometrics from:

- Credential applicants requesting access to U.S. installations overseas
- Latent prints from IEDs and other hostile actions
- Enemy combatants
- Detainees

Stores biometrics from:

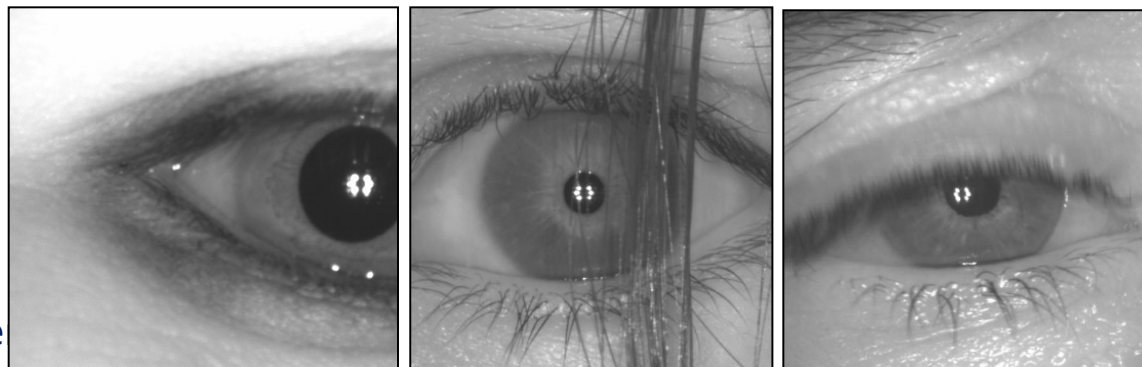
- Visa applicants
- Travelers to the U.S.
- Immigration violators
- Other immigration and border management benefits and credential applicants
- Latent prints from DoD, DoJ and DHS

► Training

- User level at point of capture
- Examination Services

► Technological Improvements

- Point of Capture
 - Remove the ability for human error
 - Mandating sequence checks
 - Sensor enhancements



Useless Iris Captures

□ ABIS

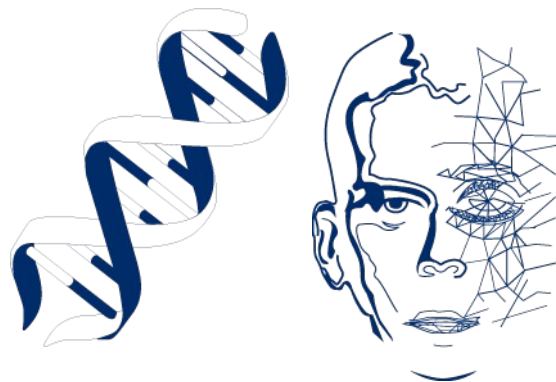
- Sequence and quality checks
- Early stages of development for latent print algorithms for matching



**Incorrect Facial
Captures**

- ▶ New Modalities

- ☐ DNA
- ☐ Vein structure
- ☐ Heart beat
- ☐ Odor
- ☐ Multi-spectral face



- ▶ Human Expertise

- ▶ Advanced algorithms/fusion

- ▶ Stand-off & non-cooperative biometrics

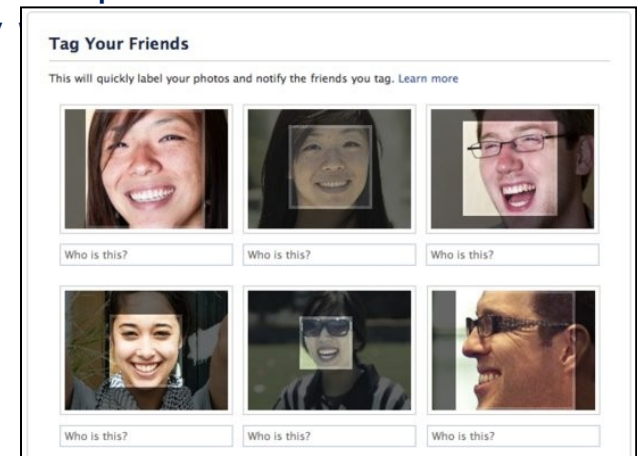
- ▶ Robustness / stability / distinctiveness of characteristics

- ▶ Vulnerability (spoofing / counter-biometrics)

- ▶ Data Management

- ☐ Security
- ☐ Scalability

- ▶ “Biometrics are unique identifiers, but they are not secrets.”
– Andrew Patrick, National Research Council Canada
- ▶ Accepting biometrics in a commercial arena will likely be dramatically different from acceptance in government applications.
- ▶ At Walt Disney World, biometric measurements are taken from the fingers of guests to ensure that the person's ticket is used by the same person from day to day. Walt Disney World is the nation's largest single commercial application of biometrics.
- ▶ Social media usage: Google “Find My Face” and Facebook “Tag Suggestions.”
- ▶ Poland's cooperative BPS bank says it's the first in Europe to install a biometric ATM -- allowing customers to withdraw cash simply via ‘finger vein’ technology



Biometrics is an ENDURING CAPABILITY

Even after the completion of Overseas Contingency Operations, Biometrics will remain an enduring capability that enables DoD Stakeholders to execute their missions.

- Biometrics will continue to support the Warfighter across the range of military operations**
- Biometrics capabilities will grow to enable operations in new and evolving mission areas**
- DoD Biometrics will expand our relationships and interaction with Interagency Partners**